

CLAIMS

1. A communication terminal comprising a rewritable non-volatile memory and a rewritable volatile memory, the communication terminal further comprising:

transfer status transition means for limiting operation of software which uses the rewritable volatile memory and securing an area required for storing an update file in the rewritable volatile memory before receiving update software as the update file from a software management server which manages the update software;

transfer request transmission means for requesting transfer of the update file to the software management server after the transfer status transition means secures the area required for storing the update file in the rewritable volatile memory;

update file reception means for receiving the update file from the software management server, and storing the update file in the rewritable volatile memory; and

software rewriting means for rewriting software, which is stored in the rewritable non-volatile memory and is directly executed, with the update software stored in the rewritable volatile memory as the update file, after completion of storing the update file to

the rewritable volatile memory by the update file reception means.

2. The communication terminal according to Claim 1, wherein the update file reception means stores
5 the update file in the area of the rewritable volatile memory, which is secured by limiting the operation of the software which uses the rewritable volatile memory by the transfer status transition means.

3. The communication terminal according to
10 Claim 1 or 2, further comprising update file information reception means for receiving update file information including size information of the update file from the software management server,

wherein the transfer status transition means
15 secures the area for storing the update file in the rewritable volatile memory by limiting the operation of the software which uses the rewritable volatile memory on the basis of the size information included in the update file information.

20 4. The communication terminal according to one of Claims 1 to 3, further comprising:

communication terminal identification information storage means for storing identification information of the communication terminal; and

25 communication terminal identification information transmission means for transmitting the identification

information of the communication terminal, which is stored in the communication terminal identification information storage means, to the software management server.

5 5. The communication terminal according to one of Claims 1 to 4, further comprising:

software identification information storage means for storing identification information of the software which is stored in the rewritable non-volatile memory;
10 and

software identification information transmission means for transmitting the identification information of the software, which is stored in the software identification information storage means, to the
15 software management server.

6. The communication terminal according to Claim 5, wherein the update file reception means receives a differential file, which is transmitted from the software management server on the basis of the
20 identification information of the software, as the update file.

7. The communication terminal according to one of Claims 1 to 6, wherein the update file reception means receives the update file by wireless
25 communication.

8. The communication terminal according to one

of Claims 1 to 7, further comprising:

rewrite success judgment means for judging whether rewrite of the software executed by the software rewriting means succeeds or not;

5 restoration status transition means for performing wire communication with a software restoration apparatus for restoring the software, which is stored in the rewritable non-volatile memory and is directly executed, by transferring the software to the
10 rewritable non-volatile memory when the rewrite success judgment means judges that rewrite of the software executed by the software rewrite means fails; and

restoration software reception means for receiving the software from the software restoration
15 apparatus and storing the software in the rewritable non-volatile memory.

9. An update method of software, which is stored in a rewritable non-volatile memory of a communication terminal having the rewritable non-
20 volatile memory and a rewritable volatile memory, and is directly executed, comprising:

a transfer status transition step in which transfer status transition means of the communication terminal limits operation of software which uses the
25 rewritable volatile memory and secures an area required for storing an update file in the rewritable volatile

memory before receiving update software as the update file from a software management server which manages the update software;

5 a transfer request transmission step in which transfer request transmission means of the communication terminal requests transfer of the update file to the software management server after the area required for storing the update file is secured in the rewritable volatile memory;

10 an update file transfer step in which the software management server transmits the update file to the communication terminal on the basis of a request of the transfer of the update file by the communication terminal, update file reception means of the
15 communication terminal receives the update file transmitted from the software management server, and the update file reception means stores the update file in the area secured by the transfer status transition means; and

20 a software rewriting step in which software rewriting means of the communication terminal rewrites software, which is stored in the rewritable non-volatile memory and is directly executed, with the update software stored in the rewritable volatile
25 memory as the update file, after the update file transfer step.

10. A software update system comprising a communication terminal having a rewritable non-volatile memory and a rewritable volatile memory, and a software management server,

5 the communication terminal comprising:

transfer status transition means for limiting operation of software which uses the rewritable volatile memory and securing an area required for storing an update file in the rewritable volatile memory before receiving update software as the update file from the software management server which manages the update software;

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transfer request transmission means for requesting transfer of the update file to the software management server after the transfer status transition means secures the area required for storing the update file in the rewritable volatile memory;

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update file reception means for receiving the update file from the software management server, and storing the update file in the rewritable volatile memory; and

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software rewriting means for rewriting software, which is stored in the rewritable non-volatile memory and is directly executed, with the update software stored in the rewritable volatile memory as the update file, after completion of storing the update file to

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the rewritable volatile memory by the update file reception means, and

the software management server comprising update file transmission means for transmitting the update software of the software, which is stored in the rewritable non-volatile memory provided in the communication terminal and is directly executed, as the update file to the communication terminal on the basis of a request of the transfer of the update file by the communication terminal.

11. The software update system according to Claim 10,

wherein the communication terminal further comprises:

software identification information storage means for storing identification information of the software which is stored in the rewritable non-volatile memory; and

software identification information transmission means for transmitting the identification information of the software, which is stored in the software identification information storage means, to the software management server,

wherein the software management server further comprises differential file creation means for producing a differential file of the update software of

the software, which is stored in the rewritable non-volatile memory provided in the communication terminal and is directly executed, on the basis of the identification information of the software transmitted from the communication terminal,

wherein the update file transmission means transmits the differential file produced by the differential file creation means to the communication terminal, and

wherein the update file reception means receives the differential file transmitted by the software management server.

12. The software update system according to Claim 10 or 11, further comprising a software restoration apparatus for connecting the communication terminal with wire communication and transferring a software to the rewritable non-volatile memory of the communication terminal whereby restoring the software in the rewritable non-volatile memory,

wherein the communication terminal further comprises:

rewrite success judgment means for judging whether rewriting the software executed by the software rewriting means succeeds or not;

restore status transition means for performing wire communication with the software restoration

apparatus for restoring the software, which is stored
in the rewritable non-volatile memory and is directly
executed, by transferring the software to the
rewritable non-volatile memory when the rewrite success
5 judgment means judges that rewrite of the software
executed by the software rewrite means fails; and

restore software reception means for receiving
the software from the software restoration apparatus
and storing the software in the rewritable non-volatile
10 memory.